

1.0 Introduction

This BAT Assessment supports an application to vary the Environmental Permit for the recovery and treatment of hazardous and non-hazardous waste at The Medway Recycling Centre, Malmaynes Hall Farm, Upper Stoke, Rochester, Kent ME3 9SG. The Site is operated by OCL Regeneration Ltd.

It has been prepared in accordance with the relevant guidance document¹. In addition, the EU Decision “Establishing best available techniques (BAT) conclusions for waste treatment”, has been reviewed.

The BAT Assessment Version 4 was approved to support the permit application. This version has been updated to reflect proposed changes to the Environmental Permit. It is proposed to make the following changes:

- Increase the hazardous waste storage capacity from 1,000 tonnes to 10,000 tonnes
- Add EWC 191212 Other wastes from mechanical treatment of waste other than those mentioned in 191211*

1.1 Overview

The operator will manage waste streams at this site associated with highway and utility works. Therefore, it is easily characterised, and the treatment processes are well established. The composition of the waste is also well established and there is little opportunity for the waste to be contaminated with other waste materials.

OCL Regeneration specialise in sustainable building materials and recycled construction materials, serving the following sectors:

- Road construction and surfacing contractors
- Utility providers and contractors

Both groups generate the same waste materials through road and pavement construction or reinstatement following upgrades/repairs to underground services.

The company work to ISO14001 and 9001 compliance schemes. They also have the following accreditations:

- The Contractors Health and Safety Assessment Scheme (CHAS)
- Construction Plant Compliance Scheme (CPSC)
- Green Roads Alliance
- Construction Products Association (CPA)
- National Plant Operators Registration Scheme (NPORS)

The operator will handle the following waste streams at the site:

Hazardous Waste

- 17 03 01* bituminous mixtures containing coal tar
- 17 03 03* coal tar and tarred products

The 170301* and 170303* waste streams are both similar in nature and will be treated in the same process. Although the likelihood of receiving 170303* is very low. This will use the cold

¹ Guidance for the Recovery and Disposal of Hazardous and Non Hazardous Waste, Sector Guidance IPPC S5.06 Environment Agency 2004.

foam encapsulation process in accordance with RPS075. This uses a cement and/or foamed bitumen to produce Hydraulically Bound Materials (HBM), Cement Bound Granular Mixtures (CBGM) or Foambase Asphalt. These waste streams will be crushed and treated using the cold foam process.

Non-Hazardous Waste

17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02 02	glass
17 03 02	bituminous mixtures other than those mentioned in 17 03 01
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 08	track ballast other than those mentioned in 17 05 07
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
19 01 12	bottom ash and slag other than those mentioned in 19 01 11
19 12 09	minerals (for example sand, stones)
19 12 12	Other wastes from mechanical treatment of waste other than those mentioned in 191211*
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
20 02 02	soil and stones
20 03 03	street-cleaning residues

Whilst this is a comprehensive list, the main waste streams that will be accepted routinely will be concrete, bricks, bituminous mixtures, mixed C&D waste, soils and stones and minerals. These wastes will be treated by screening and crushing to produce a range of aggregates such as:

- Type 1 crushed concrete
- Type 2 crushed concrete
- Type 3 crushed concrete
- 6F2 crushed concrete
- 6F1 concrete fines
- Screened soil
- 10mm Recycled Shingle
- 20mm Recycled Shingle

Waste coded EWC 191212 will be specifically for IBAA, an Incinerator Bottom Ash Aggregate. This is currently produced by third party operators. Its use is restricted by the Regulatory Position Statement 247. For the projects where IBAA cannot meet the RPS requirements, it will be transferred to the OCL site for further waste treatment.

OCL can use IBAA in two ways:

- As a constituent for the mixed materials (HBM and CRBM)
- As a constituent in "EcoBlend" mixes where their addition to primary aggregates gives an environmentally enhanced and cheaper version of the pure primary host that it has been mixed with.

The IBAA will be received and treated in the same manner as other similar non-hazardous wastes streams.

Waste streams will be treated using separate processes. The objective of the treatment process is to enable the waste to be re-used in construction projects. For hazardous waste, this will require encapsulation. For non-hazardous waste, this will involve treatment to produce specified grades of aggregates.

It is proposed to treat up to 30,000 tonnes of hazardous waste per annum, and 45,000 tonnes of non-hazardous waste per annum. The maximum throughput for the site will be 75,000 tonnes per annum. Whilst the site will accept up to 30,000 tonnes of hazardous waste, if for any reason the site does not manage that level of throughput, the difference could be met with non-hazardous waste.

The processing and recovery of non-hazardous wastes at the site will be undertaken in separate plant and is not a Listed Activity or Installation under The Environmental Permitting (England and Wales) Regulations 2016, Schedule 1. Instead it is a Waste Operation under Schedule 9 of the Regulations.

Hazardous and non-hazardous wastes will be delivered to site in separate vehicles and stored, processed and dispatched to separate areas of the site to avoid mixing of the two. OCL Regeneration Ltd is aware that under the Hazardous Waste (England and Wales) Regulations 2005, Regulation 18 prohibits the mixing of hazardous waste with non-hazardous waste.

The treatment of hazardous waste falls under the Environmental Permitting (England and Wales) Regulations 2016, Schedule 1, as follows:

- Section 5.3, Part A (1) (a) (vi) 'recycling or reclamation of inorganic materials other than metals or metal compounds';
- Section 5.6, Part A (1) (a) 'Temporary storage of hazardous waste with a total capacity exceeding 50 tonnes pending any of the activities listed in section 5.1, 5.2 or 5.3'.

Under the environmental Permitting (England and Wales) Regulations 2016, Schedule 1 activities are subject to the requirements of Best Available Techniques (BAT). Best available techniques are defined as 'the most effective and advanced stage in the development of activities and their methods of operation which indicate the practical suitability of particular techniques for providing in principle the basis for emission limit values designed to prevent and, where that is not practicable, generally to reduce emissions and the impact on the environment as a whole :

- (i) 'techniques' shall include both the technology used and the way in which the installation is designed, built, maintained, and operated.
- (ii) 'available techniques' means those developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the costs and advantages, whether or not the techniques are used or produced inside the Member State in question, as long as they are reasonably accessible to the operator;
- (iii) 'best' means most effective in achieving a high general level of protection of the environment.

1.2 Pre-Acceptance Procedures

The waste facility will receive and treat waste streams generated from highway works. They include Asphalt Waste Containing Coal Tar (AWCCT) which is hazardous waste, and non-

hazardous waste in the form of highway excavation wastes and road planings. The processes that produce the waste are clearly defined.

Historically, coal tar was commonly used as a binder in asphalt road surfaces throughout the 1970's and 1980's. Due to the high concentrations of phenols and polycyclic aromatic hydrocarbons (PAH's) in coal tar bound asphalts, such materials are classified as hazardous waste with the EWC of 17.03.01, 'bituminous mixtures containing coal tar'. Highway maintenance and improvement works on stretches of highway laid down during or preceding the 1980's can generate AWCCT.

Waste pre-acceptance procedures will ensure that only compliant waste types will be accepted. Customers delivering waste to the site will be required to provide OCL Regeneration Ltd, in advance, with all relevant/necessary information/documentation to satisfy the requirements of the Duty of Care.

Information required will include specific details of:

- Source and origin of the waste
- The quantity of waste
- The form of waste (i.e. solid, loose, liquid)
- Code according to the European Waste Catalogue
- For hazardous waste loads, determination of the wastes hazardous properties as per Environment Agency Technical Guidance WM2 'Hazardous Waste: interpretation of the definition and classification of hazardous waste' (2011) and WM3 'Waste Classification: Guidance on the classification and assessment of waste' (2015)
- The process producing the waste, including the SIC code, the characteristics of its raw materials and products which may affect its behaviour
- Appearance of the waste (smell, colour, physical form)
- Information to demonstrate that the waste is not prohibited
- Any special handling requirements

In order to enable the identification of tar bound layers, core logging of the stretch of road is carried out in-situ prior to the highway excavation works. This enables an accurate identification of hazardous wastes and allows the Waste Producer to excavate hazardous and non-hazardous wastes separately and avoid mixing the waste streams. A chemical indication process is applied to each layer of the core both vertically and horizontally allowing the Waste Producer to detect the presence of tar. This method will be validated and verified by a UKAS accredited laboratory.

This is a proven methodology for identifying the tar bound layers. The producer must provide this information to OCL, together with a written description. OCL can arrange for this work to be carried out if required. This work does not rely on product data sheets. Testing is required for each new job.

The pre-acceptance procedures require that waste loads are accepted from approved customers only. Loads of AWCCT (17.03.01 'Bituminous mixtures containing coal tar') will only be accepted from customers who have chemically tested the waste load for the presence and composition of contaminants, prior to delivery. A copy of the test survey and laboratory report will be required before any pre-acceptance is approved. Any waste loads arriving at the site that have not been tested will be rejected and refused entry.

Where the constituents of the waste are not known, OCL will arrange for a sample(s) of the waste to be analysed. Any sampling will be undertaken by trained personnel and sent to a laboratory for analysis. OCL will work with a laboratory to provide all their compliance testing.

The sample(s) must be representative. The laboratory will classify the waste in accordance with WM3. The laboratory will provide the appropriate containers for the analysis and confirm the chain of custody requirements.

All site investigation reports, and chemical analysis will be sent to the laboratory for approval. The laboratory will confirm that the information provided is sufficient to classify the waste. If necessary, further, specific testing may be requested at this stage. The producer of the waste will be notified of this and if necessary, OCL will arrange for further testing to be carried out.

All pre-acceptance information will be recorded and given a unique reference number. This information will be reviewed by the Technically Competent Manager, who will then initiate the following checks.

If the assessment has shown that the waste is suitable for treatment, the customer and project will be set up on the booking system. The project will be given a unique reference number, to provide full traceability from collection, storage, treatment and transfer. The documentation relating to the site characterisation will be stored in each project file. This will be used for verification purposes.

All records relating to pre-acceptance will be kept for at least 3 years. The records will be kept by the main office.

All vehicles delivering waste to the site will be checked to establish whether the haulier is a Registered Waste Carrier or has a valid exemption from registration. Only registered carriers or those who are lawfully exempt from registration will be permitted to use the site.

Waste will not be accepted if there is insufficient storage capacity available. This is to ensure that all waste is managed effectively to prevent pollution or loss of amenity. There is also a clear method of treatment and after use to ensure that the site will only accept waste that it has capacity to manage.

Every delivery of waste will be recorded, detailing the date of the transaction, volume, waste type, Registered Waste Carrier, Hazardous Waste Consignment Note number, vehicle registration and any other pertinent information against a unique reference number. This will allow for tracking of wastes, the generation of reports and waste returns, as well as providing comprehensive, auditable information.

All relevant documentation will be maintained at the site office. Information will be made available for inspection by officers of the Environment Agency.

Site staff will be suitably trained to understand pre-acceptance documentation, laboratory test results, Hazardous waste Consignment Notes (for hazardous waste) and Waste Transfer Notes (for non-hazardous waste).

Once the waste has been accepted for delivery, it will be assigned a unique reference number. All records relating to pre-acceptance will be maintained at the site for cross-reference and verification at the waste acceptance stage. The records will be kept for a minimum of 3 years.

All staff involved in the business have experience of utility waste production. Therefore, sales staff are fully aware of the technical requirements for handling the waste. However, only technical staff will confirm the acceptability of the waste and will report their findings to the sales staff.

1.3 Waste Acceptance Procedures

Only wastes which have been subject to the pre-acceptance procedures detailed above will be accepted at the site.

All loads must be sheeted at the point of arrival. The vehicle will be weighed, and the driver will provide information to the site office, this will include the Hazardous Waste Consignment Note. The delivery of the load will be pre-arranged. Therefore, the correct paperwork from the pre-acceptance stage will be readily available.

Waste Acceptance Procedures will be overseen by the Technically Competent Manager, who has achieved WAMITAB Level 4 High Risk Operator Competence for Managing Physical and Chemical Treatment of Hazardous Waste. All staff will receive training on the waste acceptance procedures. A site operative will inspect the details on the Hazardous Waste Consignment and compare the information to that in the pre-acceptance documentation already received (including laboratory results) or Waste Transfer Notes (as applicable), six figure European Waste Catalogue Code and against the waste types permitted by the Environmental Permit. If necessary, the driver will be asked to park adjacent to the incoming storage area to avoid traffic queues on the weighbridge.

All site operatives will be trained in the receipt and checking of waste at the acceptance stage. The nature of this work is very consistent. It will treat waste generated from utility and highway works, which have established procedures from production through to treatment. A trained chemist will not be required for this operation.

The site operative will visually inspect the contents of the waste load to ensure only compliant wastes are accepted. Only wastes that have the relevant pre-acceptance documentation, laboratory test results, Hazardous Waste Consignment Note or Waste Transfer Note and are confirmed as authorised wastes under the Environmental Permit will be accepted.

The driver will be instructed to unsheet the vehicle and to unload the waste in the correct area. There will be two unloading areas; one for hazardous waste (AWCCT) and one for non-hazardous waste. The AWCCT will be unloaded in Reception Area 2. This is a visible and dedicated area, located on an impermeable surface with sealed drainage.

The waste will be visually inspected as it is unloaded, or immediately after it has been unloaded. At this stage, the bay will be labelled with the unique tracking reference number. This enables the waste to be processed as a batch.

The waste being managed at this site is unique and consistent. The on-site verification will take place for every load, but the compliance testing will not be required for every load. For AWCCT, the nature of the waste will be established through core testing at the point of production. This information is used to provide the basic characterisation. As this waste stream is unique, it will not be necessary to carry out compliance testing. The treated AWCCT will meet the requirements of RPS075, which does not require compliance testing. The core analysis is considered sufficient for this process.

For small projects i.e. that generate less than 50 tonnes of non-hazardous waste, no compliance testing will be required. The treatment will proceed using the basic characterisation. Compliance testing will be carried out for all other projects.

Samples will be kept on site for at least 2 days after the waste has been treated or removed off-site.

All waste will be tracked using the audit system. This includes a unique reference number, basic characterisation, documentation provided by the driver, compliance testing and storage bay number. The compliance testing will include details of the sampling carried out (number of sample/volume, analysis). This will be added to the tracking system.

1.4 Waste Rejection Procedure

In the unlikely event that non-permitted waste is inadvertently accepted at the site, the waste will either be reloaded onto the delivery vehicle for return to the waste producer or a suitably authorised facility or deposited in a secure skip or contained area for quarantined storage prior to off-site removal either to the waste producer or suitably authorised facility. Quarantine skips/areas will be separate for hazardous and non-hazardous wastes.

There will be a quarantine container within the hazardous waste area, which will be on an impermeable surface with sealed drainage. The non-hazardous quarantine container will be located on the impermeable surface within the non-hazardous waste drainage area. The type of waste that may require being quarantined include plastic and cardboard packaging. These are low risk waste streams. The pre-acceptance and on-site acceptance will minimise the likelihood of non-compliant waste being accepted.

Any instances of rejection of loads will be recorded in a site log, which will be made available for inspection by authorised officers of the Environment Agency. The waste producer and the Environment Agency will be notified of the non-compliance.

Waste materials dispatched off-site to an authorised facility will be removed in accordance with the Duty of Care and appropriate Hazardous Waste Consignment Notes and Waste Transfer Notes will be maintained at the site office. The records will be assigned the unique reference number for the job for tracking.

Due to the nature of the operation and that only pre-approved waste will be delivered, it is considered extremely unlikely that non-permitted waste will be accepted at the site.

All paperwork relating to the waste acceptance checks will be assigned the unique reference number set in the pre-acceptance stage.

1.5 Storage

In compliance with the EU Decision, the site has been selected for the use due to its remote location. With reference to the Risk Assessment, there are no nearby sensitive receptors.

Storage bays will be provided at the site. Prior to accepting waste, the storage capacity of the site will be checked to ensure sufficient capacity is available.

There will be two reception bays. One for AWCCT waste and one for non-hazardous waste. These will be clearly labelled to avoid cross contamination. The hazardous waste has been positioned in a separate area of the site. Both reception bays are large areas within their part of the site. The areas will be checked daily, and waste will only be accepted if capacity is available. All waste acceptance is pre-notified, this allows OCL to ensure capacity exists at the site and prevent waste sprawling from the bays.

In addition, there will be three separate bays, labelled Bay A – C on the site plan, which will be used to provide storage capacity pending any testing requirements. These have been located within the sealed catchment area of the hazardous waste operation. This will allow the bays to be used for storing waste pending compliance testing.

Until the results of the compliance testing are known, the bay will be labelled with the hazardous waste properties identified at the basic characterisation stage. Each bay will have its own labelling system.

Reception Bay 2 will be used for AWCCT and will be labelled accordingly with the hazardous characteristics HP7 Carcinogenic and HP14 Ecotoxic.

The integrity of the storage bays will be checked daily as part of the daily site checks. This will also include checking the volume. Waste will only be accepted if there is capacity, all waste received is pre-notified.

Hazardous wastes will be stored on an impermeable surface with sealed drainage system.

The site has been designed to minimise double handling of waste. The processing plant is mobile and can be positioned adjacent to the storage bays, with conveyors off-loading products into different bays.

Waste treatment will be on a batch process and therefore waste arriving will be treated within 5 days.

The wastes being accepted do not have incompatibility concerns. The only controls required is to prevent any cross contamination between non-hazardous waste and hazardous waste. The waste has been generated from highway works and exist in the ground as distinct but adjoining layers.

Different loading shovels will be used for each waste stream i.e. non-hazardous and hazardous wastes. The shovels will be parked in the corresponding waste bay and will be labelled to ensure the correct plant is used to move the correct waste. In the event that no hazardous waste is stored on site, the loading shovel may be used for non-hazardous waste but the bucket must be cleaned between uses.

The waste is not combustible and fire risk is not a significant concern.

The maximum storage limits will be:

Non-Hazardous Waste	10,000 tonnes at any one time
Hazardous Waste	10,000 tonnes at any one time

Bays A-C could be used either for non-hazardous or hazardous waste. Once the material has been removed from one of these bays, it will be washed down prior to receiving more waste. The bay walls will be 4m high. Material will be stored with a 0.5m freeboard against the 4m high wall. The following storage limits for waste are provided:

Storage Reference	Volume
Reception Bay 1 (Non-Hazardous)	1,500m ³
SMR Reception (Non Hazardous)	1,500m ³
Reception Bay 2 (Hazardous)	3,000m ³
Bay A	600m ³
Bay B	600m ³
Bay C	600m ³
Pre-Blend (Hazardous)	250m ³
Quarantine Bin Hazardous	30m ³
Quarantine Bin Non-Hazardous	30m ³

Each bay will be labelled with the maximum storage limits. Bays A-C are 10m in length. There will be a limit set on the inner bay wall at 9.5m. This will allow the site staff to have a quick visual check for the limit when unloading. The site is remote and therefore it is unlikely that odour will be an issue. Odour associated with AWCCT is typically associated with the PAH compounds. For PAH to be released, the waste would need to be heated. In storage, the AWCCT is unlikely to be odorous.

If odour is detected, arrangements will be made to process the waste within 24 hours to ensure it is encapsulated and the risk removed.

For raw materials, they will be stored as follows:

Pulverised Fuel Ash (PFA)	Open storage bay
Ordinary Portland cement (OPC)	Enclosed Silo
Bitumen	Tank
Diesel	Bunded Fuel Tank
Water	Mains supply
Lime	Enclosed Silo

The PFA will be delivered and placed in the dedicated storage bay. The PFA meets the technical specification BS EN 13055-1:2002. PFA ceases to be a waste when it meets the requirements of an approved product standard. The standard described above is an approved product standard. OCL maintain compliance test certificates from the producers. As part of OCL's EMS, this information is checked and updated annually.

The PFA will be stored within a bay that has concrete walls on three sides to contain it. PFA generally forms a crust which sets unless disturbed. If the PFA is to be stored for long periods, it will be covered in a plastic sheet or tarpaulin.

The bitumen is currently provided by Tarmac. Tarmac provide data sheets for the product.

1.6 Waste Treatment – Hazardous Waste.

Coal Tar Based Wastes

The treatment of coal tar based hazardous waste involves the encapsulation using bitumen. The treatment uses bespoke technology designed specifically for this purpose.

The treatment process will be used specifically for the following waste streams:

- EWC 170301* Bituminous mixtures containing coal tar
- EWC 170303* Coal tar and tarred products

The treatment process for these wastes will be through a purpose designed cold foam mixing plant for reuse. Hot bitumen product, at circa 160 to 180°C, is transferred from a sealed tank into the mixing plant, where it is reacted with pressurised air (circa 5 bar) and 1 to 2% cold water in an expansion chamber to form a bitumen foam. This expands rapidly by 15 to 20 times the bitumen volume. The ratio between maximum foam volume achieved and the volume of original bitumen is partly dependant on the amount of water added. This is computer controlled in the plant to ensure optimum performance. After reaching its maximum volume, the foam dissipates rapidly accompanied by the loss of steam. The time that the foam takes to collapse to half of its maximum volume is referred to as the half-life.

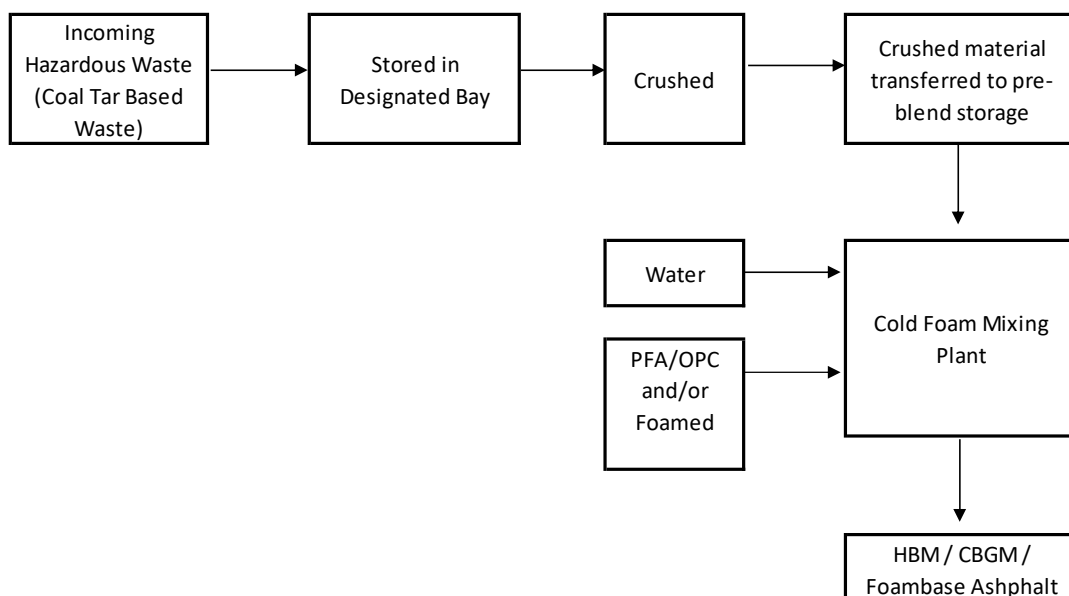
Typically, the half-life would be in the range of 20-30 seconds. This rapid collapse of the foam once it is applied to the AWCCT enables the swift processing and treatment of the material. The AWCCT is introduced into the cold foam mixing plant via a feed hopper and conveyor. Water is added to the AWCCT assists the mixing and treatment process. The foamed bitumen is sprayed onto the AWCCT and mixed within the plant to ensure that foam distribution is homogeneous, and all materials are adequately coated and encapsulated. The treated material is then discharged from the plant via a conveyor, typically to tipper vehicles for off-site removal or into a stockpile for subsequent reuse. Additives such as pulverised fuel ash (PFA) and ordinary Portland cement (OPC) are added, as required, to improve the cohesion and binding process. Depending on operational requirements, PFA and/or OPC will be stored in a mobile silo and fed via a screw auger into the plants mixing chamber. The use of OPC or PFA has the following advantages:

- Adhesion between bitumen and AWCCT is improved
- Strength of recovered materials improves, and the speed of improvements quickens
- Performance of recovered materials (i.e. resistance to deformation, rutting and moisture) improves

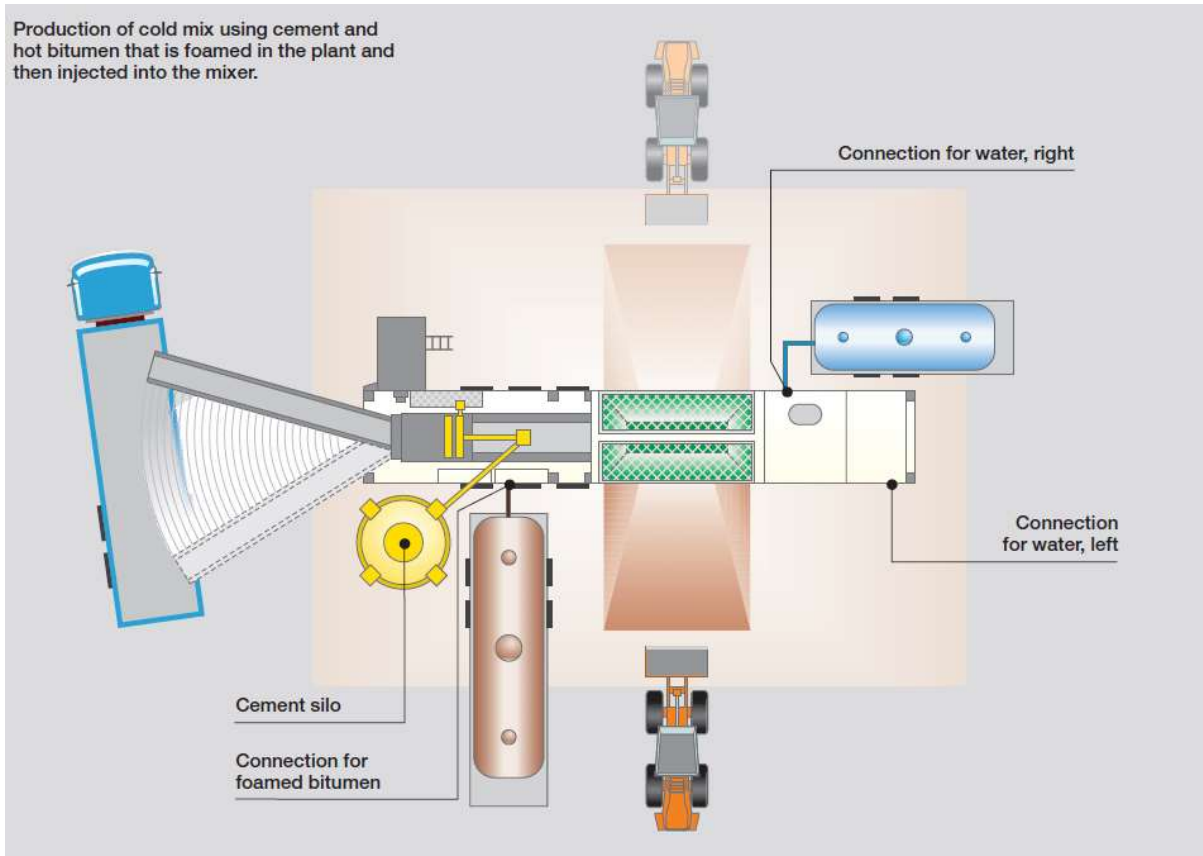
The cold foam treatment plant is computer controlled and the system includes automatic control of air and water requirements for the foaming process, display of process variables including equipment status and process alarms and all control valve positions (open/closed) with manual override function.

The display keeps the plant operator up to date on important production details, such as the quantity produced as part of a batch production. The intelligent control system registers any malfunction or material shortage and stops the plant, if required.

The process flow is as follows:



The plant to be used for this process is a mobile cold recycling mixing plant. Specification details are provided. This mobile plant can process 220 tonnes per hour.



Depending on the mix, the raw materials for this process include:

- Pulverised Fuel Ash (PFA)
- Ordinary Portland cement (OPC) – stored within separate silo.
- Bitumen
- Water
- Diesel

The amount of bitumen required will vary for each batch process.

With reference to the process flow diagram, the following emission points have been identified.

Stage	Description	Nature	Pollution Control Measure
1	Incoming Deliveries	Release of dust particles to Atmosphere	Based on Risk Assessment this is a low risk. There are no nearby receptors. The reception bay is within a bay wall, surrounded by an earth bund.
2	Crushing	Release of dust to Atmosphere	The crusher will be loaded using the minimum drop height. Dust Suppression is integral to the crushing plant.
3	Transfer to Pre-Blend Bay and loading Cold Foam Plant	Release of dust to Atmosphere	Transfer will take place using dedicated loading shovel to avoid cross contamination. Placement

			will be in a bay using minimum drop height.
4	Addition of PFA or cement.	Release of dust to Atmosphere	The cement will be stored in an enclosed silo. Loading of which will be through enclosed pipework. No fugitive release of cement will take place.
5	Addition of bitumen	Release of odour to Atmosphere	The bitumen will be stored in an enclosed tank. Loading of which will be through enclosed pipework. No fugitive release of bitumen will take place.
6	Treatment	Release of dust to Atmosphere	The cold foam mixing process takes place in a fully enclosed system. The addition of materials is automatically controlled to release the substances at the set rate. Steam is contained within the plant.
7	Production and storage of HBM or CBGM or Foambase Asphalt	Release of dust to Atmosphere	The HBM will be stored in a bay, with a 0.5m freeboard against the wall. Alternatively, the product will be directly loaded into a waiting vehicle. The vehicle will be sheeted before exiting the site.

The plant has an integral water tank that can hold 4,500 litres. This will be continuously mains fed. If the water is not used in treatment process, it will remain in the storage tank for the next batch.

The treatment process will fully encapsulate the AWCCT and remove the hazardous characteristics HP7 Carcinogenic and HP14 Ecotoxic.

The operator has achieved ISO14001. As part of that certification is a commitment to continually check the environmental performance of plant and machinery. The company has a policy to replace plant with modern machinery, achieving a higher emission rating.

In the event that the generator fails, the operator will hire an alternative generator to ensure that the processing capacity is maintained. Any replacement generator must meet the same emission rating or better.

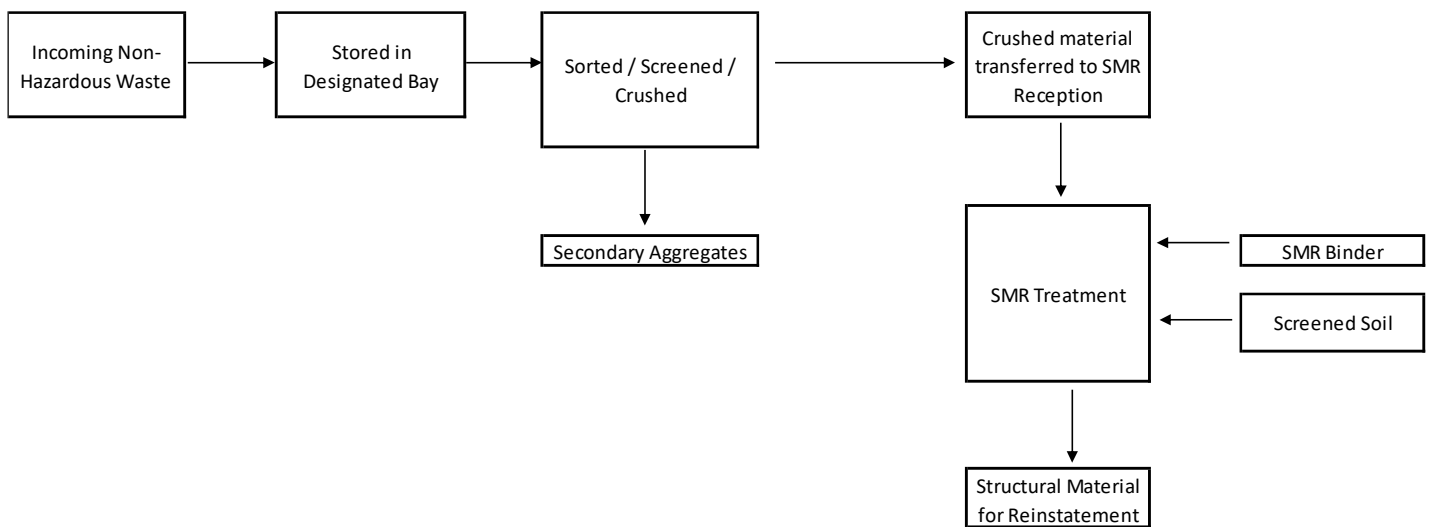
The plant is bespoke technology for the waste being treated. The system is fully enclosed and automated. The only exception to this is the physical loading into the plant of the waste. Once the waste is within a plant, the addition of water and additives is controlled automatically.

The control system is used to measure the quantity of additives required for the process. The system will detect any material shortages and will shut down. The control system will record data including quantity produced as part of the batch process.

1.7 Waste Treatment – Non Hazardous Waste

For non-hazardous waste, this will be deposited in a separate bay. The waste will be sorted to produce secondary aggregates. This could include screener and crushing. Some crushed material will be placed in the SMR reception bay and loaded into the plant to produce SMR (Structural Material for Reinstatement). This is cold mixing plant.

The waste will be loaded into the feed hopper of the plant. The SMR binder is added into the plant. This binder contains cementitious materials which are used to bond the material together. This SMR process allows the excavation waste to be recycled and used as a Type 1 replacement material. A process flow diagram is provided below for the non-hazardous waste.



Different equipment will be used for non-hazardous and hazardous waste, including different cold mixing plants and loading shovels.

The following products will be stored on site:

- Sand
- Ballast
- MOT Type 1
- Shingle
- 6n, 6F1 and 6F2
- 0-20mm
- Structural Material for Reinstatement (SMR)
- Cement Bound Granular Material (CBGM)
- Hydraulically Boundary Material (HBM)
- Storage Grade Foambase™

All outputs will be subject to OCL’s quality control procedures. The production requires compliance with British Standards. This allows OCL to ensure that each batch process is successful.

The following products and standards are used:

- Cement Bound Granular Material (CBGM) – BSEN 14227-1
- Hydraulically Boundary Material (HBM) – BSEN 14227 parts 1-15
- Design Manual for Roads and Bridges
- Manual of Contract Documents for Highway Works (MCHW)

The products are being used to construct new roads and pavements, or repair roads and pavements. As a result, they are required to meet technical standards. Those standards confirm that the treatment process has been successful. Testing requirements will vary on the proposed use, but typical tests include:

- CBR
- Grading
- Cube Strength
- ITSM (Indirect Tensile Stiffness Modulus)

If the product does not meet the technical standard, the batch will be checked against the testing procedure to ensure that no part of the treatment has failed. The batch will be temporarily stored in one of Bays A-C and will be subject to a repeat treatment process.

The process is unique and well established. It is highly unlikely that a batch will fail the technical test.

The non-hazardous waste will be treated to provide a range of products that will be in accordance with the WRAP protocol. A Factory Production Control Manual will be produced. This describes the processes used for each manufactured product.

1.8 Maintenance

All plant, equipment and infrastructure on Site will be inspected, serviced and maintained as per manufacturer guidance and 'Preventative Maintenance Checklist' (see Appendix 6).

The Environment Agency shall be informed without delay if there is any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution or cause any significant adverse environmental and health effects.

Any required maintenance at the Facility will be carried out as is practicable to ensure continued running of the Facility and be recorded on the 'Maintenance Record' (see Appendix 7).

All plant and machinery will be subject to daily start-up checks. Any defects will be reported to the site manager.

1.9 Records

The waste tracking system will include the following information. This will be set up for each new job and assigned a unique reference number.

- Pre-Acceptance waste information (basic characterisation)
 - Analysis
 - Producer details (waste source)
 - The quantity of waste
 - The form of waste (i.e. solid, loose, liquid)
 - Code according to the European Waste Catalogue

- For hazardous waste loads, determination of the wastes hazardous properties as per Environment Agency Technical Guidance WM2 'Hazardous Waste : interpretation of the definition and classification of hazardous waste' (2011) and WM3 'Waste Classification : Guidance on the classification and assessment of waste' (2015)
- The process producing the waste, including the SIC code, the characteristics of its raw materials and products which may affect its behaviour
- Appearance of the waste (smell, colour, physical form)
- Information to demonstrate that the waste is not prohibited
- Any special handling requirements
- Anticipated Delivery date
- Waste Arrival checks
 - Waste Transfer Notes/Consignment Note
 - Weight (quantity)
 - On-Site Verification checks
 - Bay Number (cross refer to site plan)
 - Date of Arrival
 - Intended end use
 - Details of waste operators overseeing the acceptance
 - Any rejection procedures and details of waste operator overseeing this process
- Storage
 - Bay Number
 - Storage volume of waste waiting to be treated (hazardous and non-hazardous)
 - Storage volume of materials waiting to be dispatched from site
 - Volume of waste in quarantine area
 - Date of Arrival
 - Daily site checks: integrity of the storage bays, damage and repairs.
- Waste Treatment
 - Date of treatment
 - Volume treated
 - Materials Produced (type and quantity)
 - Waste produced (type and quantity)
- Final Sign-Off
 - Destination of waste
 - Destination of products
 - Records stored for 3 years

All records will be stored in the site office, away from the operational activities. The site office provides a secure storage area. Back-up copies of computer records will be kept electronically at the company Head Office.

2.0 Emissions Control

2.1 Point Source Emissions to Air

The only point source emission to air is from the generator. A 60kva diesel generator will be used to provide electricity for heating the bitumen product for use in the foaming and encapsulation process. This plant is EU Stage IIIA certified. The risk assessment for this plant does not identify any risk with regards to air quality.

The generator meets the EU stage emission standard and no monitoring is required. The generator is hired with a 24/7 call out facility.

2.2 Point Source Emissions to Surface Water and Sewer

There are no point source emissions to surface water and sewer.

EU Decision BAT 6 and 7 are not relevant to this facility.

2.3 Point Source Emissions to Groundwater

There are no point source emissions to groundwater. The site will be concreted to provide an impermeable surface.

2.4 Fugitive Emissions to air

The main source of fugitive emissions to air will be from the handling of the waste material. The following stages have been identified as potential sources of dust:

- Unloading waste into the storage bay
- Loading waste into the crusher
- Crushing and/or screening
- Moving material on site
- Storage
- Loading the treatment plant
- Loading vehicles
- Vehicle movements

The storage of waste and materials will be within bays. There will be a 0.5m freeboard against the bay wall to minimise wind whip. There is also a 4m high earth bund around the northern and eastern site boundaries.

The site will adopt the following control measures:

- The weather forecast will be monitored throughout the day.
- A banksman will be used to assist vehicle manoeuvring and to prevent vehicles from tracking over waste.
- All vehicles will leave the site with clean wheels. These will be checked by the banksman before leaving.
- A road sweeper will be used to keep the site entrance and yard clean. During dry weather, the road sweeper will be based at the site to clean the site daily.
- The stockpiles will be dampened using the suppression system.
- Speed restrictions on site limit dust arising from waste vehicles (5mph)
- As part of the site daily checks, the Site Manager will check the entire site for evidence of any debris and arrange cleaning as required.

- Fully enclosed treatment systems.
- Enclosed cement silo (loaded and loaded using enclosed pipework).

In addition, the operator will provide a number of mobile dust cannon units. These have a range of 30m and will be deployed when vehicles unload during dry weather conditions. They will also be used to dampen stockpiles and the yard area during dry weather conditions. The site is remote from receptors and is not located within an Air Quality Management Area. Dampening is compliant with BAT 14 and is considered to be reasonable for the scale of operation.

All potential emissions from activities will be monitored during site opening under the supervision of the competent person, either directly or indirectly through trained staff and recorded daily using the daily site inspection form.

2.5 Fugitive Emissions to Surface Water, Sewer and groundwater

No liquid waste is permitted to be accepted the site.

The drainage plan is shown on Drawing No. OCL-MRC-DRN-01.

The drainage plan provides two separate systems. The hazardous waste operational area will be a sealed system. Surface water that is generated in this area will be directed by engineered falls into a drainage channel that will enter a sealed tank. The sealed tank will be checked daily and arrangements will be made to enter the tank when it is 80% full. The daily site checks will record the percentage volume. The site manager will contact an approved sub-contractor to empty the tank.

Appropriate paperwork will be used to record the transfer of this waste (Waste Transfer and Consignment Notes). The water will be tested and classified accordingly to ensure that its hazardous properties are known before the transfer takes place.

The rest of the site will be used for managing non-hazardous waste. This will be an impermeable surface draining into an interceptor followed by two attenuation tanks. The falls on this part of the site will direct surface water to the northern part. This will be lined with an impermeable membrane against the bund, to direct water into the interceptor. This will allow OCL to control the release of the water into the storage pond. There will be a hydrobrake on the exit of the attenuation tank which will allow this drainage system to be shut down. From the pond, there is an existing outlet to the open ditch. As the water will be tested before entering the pond, the pond will only be used for storing clean water, which can then enter the ditch system.

The interceptor will be subject to daily checks. The daily site checks will record the percentage volume of water stored in the tank. Based on experience, the interceptor will be emptied on an annual basis to remove the solids at the bottom. This will be carried out by an approved contractor (and registered waste carrier). The contents will be removed from the site with a consignment note.

The entire drainage system and site infrastructure will be subject to daily inspections.

The working areas will be surrounded by a raised level of 300mm. This will be an impermeable concrete barrier. This will prevent surface water escaping beyond the site boundary.

As part of the planning application, an Extended Phase 1 Habitat Survey was commissioned. Further specific surveys were undertaken to check for Great Crested Newts in the pond. No newts were found in the pond.

The only source of liquid contamination would be from leaks or spillages of diesel or fuel.

Diesel will be stored in a bunded tank and the condition of the tank will be inspected and recorded daily using the daily site inspection form. These will comply with Oil Storage Regulations 2001 [as amended]. The bund tanks will be stored on a concrete pad. If there is an oil spillage, the spillage procedure will be implemented.

2.6 Odour

Odour is not typically associated with this operation. EU Decision BAT 10, 12 and 13 are not applicable to this facility.

2.7 Management

The company currently has an Environmental Management System, certified to ISO14001. Effective operational and maintenance systems will be employed on all aspects of the process. This includes, daily plant checks and site checks, weekly checks, plant maintenance programmes, and contingency in the event of a failure.

In accordance with the EU Decision, the commitment to improving environmental performance is confirmed with the IS14001 certification.

2.8 Training

The Technically Competent Manager has achieved WAMITAB Level 4 High Risk Operator Competence for Managing Physical and Chemical Treatment of Hazardous Waste. This is considered appropriate for overseeing all operations at this site.

The process of using AWCCT is very well established. RPS075 considers that the environmental risk associated with recovering AWCCT is low and capable of being adequately controlled by means of suitable general rules. This process can take place without an Environmental Permit.

The processing plants being used at this site are all mobile. They have been designed to treat the waste arisings through highway and utility works at the source. These plants could therefore be used at the point of production without a chemist being available to oversee the process.

The nature of the waste is very specific and well characterised. The Sector Guidance refers to using a qualified chemist for classifying waste from laboratories. For other producers, the circumstances of waste production may vary, and the guidance therefore supports a chemist for carrying out those assessments. The waste generated from utility and highway works is well established and the classification is straightforward. All waste being handled at this site will be from utility or highway works. These wastes are well characterised and will not vary significantly from project to project. These wastes could be managed at the source using mobile equipment without any requirement for a chemist.

It is therefore considered appropriate and proportionate to have staff with WAMITAB Level 4 oversee the waste acceptance and sampling.

OCL staff have over 25 years experience handling these streams.

The Site staff will be trained and instructed in the procedures required to operate the Site and will be aware of the waste types accepted as well as relevant Environmental Permit and Legislation as required.

The Site will always be manned and supervised when waste operations are in progress.

A record of all training will be kept on the 'Training Record' together with the 'Training Needs Checklist' (see Appendix 10 and 11). The training needs checklist includes:

- Environmental Awareness
 - Permit role and responsibility
 - Waste Receipt including Duty of Care
 - Waste Treatment and Storage
 - Awareness of local sensitive receptors
 - Permit conditions and non-conformances
- Maintenance/Operations
 - Maintenance of cold foam treatment plant
 - Maintenance of silos and storage tanks
 - Maintenance of plant and machinery
 - Maintenance of bay walls and concrete floor
- Accidents and Emergency
 - Fire
 - Spill response
 - Failure of services

2.9 Accidents/Incidents/Non Conformance

A separate Accident Management Plan has been prepared. The site will be secured to prevent unauthorised access.

Any loads arriving at the Facility which contain non-permitted wastes, or a significant amount of contrary material will be rejected prior to unloading. In the unlikely event that a vehicle inadvertently deposits non-permitted waste or a large amount of contrary material, it will be re-loaded where possible. Should the vehicle have already left the Facility, the non-permitted waste or contrary material will be stored in a quarantine area of the site or a sealed skip, pending removal of the material to the waste producer or authorised facility. Any non-permitted hazardous and non-hazardous will be stored in separate quarantine areas or sealed skips.

Material rejected from the facility will be issued with a record stating why, when and from which contract the waste was derived from. This record will be held at the Facility for the Environment Agency to inspect. In addition, the 'Record of Non-Conformance', Appendix 2, will be completed and retained at the facility.

Small amounts of contrary material present in any incoming loads will be removed by hand or machine and temporarily stored in the appropriate quarantine skip pending removal from site to a suitably permitted facility.

Wastes that are malodorous or liquid are not permitted and will not be accepted at the Facility.

Any accidents, incidents or non-conformance will be investigated by Senior Site Management. The outcome of any investigation will be reported to the appropriate authorities and to site staff. This will be followed by a training session for site staff, where the incident is described in detail and staff work through the preventative and corrective actions.

As part of the site commissioning phase, the operator will contact the Local Fire and Rescue Service to undertake a site walk around and identify any specific hazardous need to be documented with them.

2.10 Raw Materials

The selection of raw materials at the Site will take into account the environmental impact associated with their manufacture, use and recovery. Materials from sustainable and renewable sources will be used where technically and financially feasible. Consideration will be given to the recycling and recovery of spent materials after their use and to sourcing products as locally possible to minimise the environmental impact and costs associated with haulage.

Efficient use of raw materials will always be maintained, so that only the required quantity of products is used to ensure optimum performance and subsequent waste arisings are minimised.

An inventory of raw materials will be maintained.

2.11 Waste Minimisation Audit

Waste minimisation will include preventive maintenance in accordance with manufacturers recommendations to ensure plant operates efficiently and any inadvertent leaks of lubricants, radiator coolant, antifreeze or fuel are quickly identified and remediated.

Fluid levels will be checked regularly to prevent over filling and wastage. Spent raw materials will be recovered or recycled, to minimise waste disposal.

A raw materials efficiency audit will be undertaken at the end of the first year and thereafter at intervals not exceeding 4 years.

2.12 Waste Use

Water will be required for the treatment of AWCCT, welfare facilities and toilets. Water will be supplied from the Site mains.

The drainage system includes water harvesting to enable water to be captured and re-used in the process or for dust suppression. This is compliant with EU Decision BAT19 which supports water recirculation.

2.13 Water Efficiency Measures

Water efficiency measures will include the following where technically and financially feasible:

- Use of low flow taps/sprays.
- Hose pipes fitted with activation triggers to prevent use when not required.
- Low flush toilets.
- Consumption monitoring of mains water and reporting to site management

A water efficiency audit will be undertaken at the end of the first year and thereafter at intervals not exceeding 4 years.

2.14 Energy

Energy use at the site will be low. As the site is not operational, a review of the energy consumption will be carried out 12 months after operations commence. In accordance with EU Decision BAT 11, OCL will monitor the annual consumption of water, energy, raw materials, and any waste residues, on an annual basis.

Energy efficiency measures will be incorporated where possible into the day to day activities of the installation. However, the energy requirements are essential to the continued operation of the installation to prevent pollution and minimise environmental risks.

There are potential energy efficiency improvements to be made including basic energy awareness measures such as energy saving light bulbs, insulation and switching off lights when rooms are not in use. The operator will provide an anti-idling campaign to ensure all plant and machinery is switched off when not in use.

In order to fulfil the requirements of the EMS, a procedure is in place that ensures the continual improvement of techniques used on site, as well as the long-term monitoring of innovative techniques that appear on the market during the life of the site. These may include further energy efficient measures, potential 'cleaner' fuel options and energy efficient systems for environmental protection.

2.15 Noise

The site is remote from sensitive receptors. There are no residents living at Malmaynes Hall Farm.

The risk assessment did not identify any risks associated with noise. EU Decision BAT 17 and 18 are not relevant. However, the following measures will be implemented to ensure noise is minimal:

- Speed limits will be imposed for all vehicles using the site;
- Operating plant in a noise sensitive manner (avoiding unnecessary throttling back and acceleration);
- The access road will be regularly maintained, thereby minimising noise from vehicles travelling on uneven surfaces;
- All plant and machinery will be maintained in accordance with the manufacture's recommendations;
- Only trained staff will use the equipment;
- Use of a banksman to control vehicle movements to avoid unnecessary manoeuvring;
- Plant and machinery will be switched off when not in use; and
- Maintain a site diary with accurate records of any changes in the operations.

2.16 Monitoring

Process monitoring will be undertaken to ensure a high performance of Site operation and pollution control.

Daily site checks will take place to ensure that the operations are not generating dust emissions. All staff will be trained to identify the sources of dust emissions, and actions to take in the event that dust is being generated.

Water sampling will be carried out before discharging to the storage pond.

The analysis will include the following, with the Limits of Detection:

Speciated PAHS:

Naphthalene	0.01ug/l
Acenaphthylene	0.01ug/l
Acenaphthene	0.01ug/l
Fluorene	0.01ug/l
Phenanthrene	0.01ug/l
Anthracene	0.01ug/l
Fluoranthene	0.01ug/l
Pyrene	0.01ug/l
Benzo(a)anthracene	0.01ug/l
Chrysene	0.01ug/l
Benzo(b)fluoranthene	0.01ug/l
Benzo(k)fluoranthene	0.01ug/l
Benzo(a)pyrene	0.01ug/l
Indeno(1,2,3-cd)pyrene	0.01ug/l
Dibenz(a,h)anthracene	0.01ug/l
Benzo(ghi)perylene	0.01ug/l

Total EPA-16 PAHs 0.16ug/l

Arsenic (dissolved)	0.15ug/l
Cadmium (dissolved)	0.02ug/l
Chromium (hexavalent)	5ug/l
Chromium (dissolved)	0.2ug/l
Copper (dissolved)	0.5ug/l
Lead (dissolved)	0.2ug/l
Mercury (dissolved)	0.05ug/l
Nickel (dissolved)	0.5ug/l
Selenium (dissolved)	0.6ug/l
Zinc (dissolved)	0.5ug/l

Benzene 1ug/l

TPH-CWG - Aliphatic >C5 - C6	1µg/l
TPH-CWG - Aliphatic >C6 - C8	1µg/l
TPH-CWG - Aliphatic >C8 - C10	1µg/l
TPH-CWG - Aliphatic >C10 - C12	10µg/l
TPH-CWG - Aliphatic >C12 - C16	10µg/l
TPH-CWG - Aliphatic >C16 - C21	10µg/l
TPH-CWG - Aliphatic >C21 - C35	10µg/l
TPH-CWG - Aliphatic (C5 - C35)	10µg/l

TPH-CWG - Aromatic >C5 - C7	1µg/l
TPH-CWG - Aromatic >C7 - C8	1µg/l
TPH-CWG - Aromatic >C8 - C10	1µg/l
TPH-CWG - Aromatic >C10 - C12	10µg/l
TPH-CWG - Aromatic >C12 - C16	10µg/l
TPH-CWG - Aromatic >C16 - C21	10µg/l
TPH-CWG - Aromatic >C21 - C35	10µg/l
TPH-CWG - Aromatic (C5 - C35)	10µg/l

The samples will be compared against the Environmental Quality Standards (EQS) for Freshwaters. The EQS' s have been generated for both List 1 and List 2 dangerous substances in controlled waters in England and Wales. The concentrations stated by

the EQS represent concentrations below which no detrimental effects to aquatic life should occur. This relates to the receiving water and not the discharge. If possible, and prior to operations commencing, a sample of water in the pond will be analysed for baseline reporting. However, the pond has been reported dry for most of the year.

Where no EQS' s are available or no appropriate alternative conservative EQS for a similar chemical, the Dutch Intervention Values (DIV) for groundwater have been used as preliminary screening tools. The following Generic Guideline Values will be used.

SUBSTANCE	STANDARD	GENERIC GUIDELINE VALUE (ug/l)
Naphthalene	EQS	10
Acenaphthylene	EQS (Naphthalene)	10
Acenaphthene	EQS (Naphthalene)	10
Fluorene	DIV (Anthracene)	5
Phenanthrene	DIV (Anthracene)	5
Anthracene	DIV	5
Fluoranthene	DIV	10
Benzo(a) anthracene	DIV	0.5
Chrysene	DIV	0.2
Benzo(b)fluoranthene	DIV Benzo(k)fluoranthene	0.05
Benzo(k)fluoranthene	DIV	0.05
Benzo(a)pyrene	DIV	0.05
Indeno(1,2,3-cd)pyrene	DIV	0.05
Benzo(ghi)perylene	DIV (Benzo(a)pyrene)	0.05
Arsenic	EQS	50
Cadmium	EQS	5
Chromium	EQS	5-250
Copper	EQS	1-28
Lead	EQS	4-250
Mercury	EQS	1
Nickel	EQS	50-200
Selenium	EQS	10
Zinc	EQS	8-500
Benzene	EQS	30
Mineral Oils (C10 – C40)	DIV	600

The laboratory will provide the correct containers to be used for the analysis. The samples will be collected and sent to the laboratory using their chain of custody reporting. The laboratory will use MCERT accredited testing methods where available.

The sample will be taken and analysed prior to release to the pond. The frequency of testing will be dependent on the volume of water in the drainage system. There will be an interceptor and two attenuation tanks prior to the pond. This is not a wastewater treatment process used to manage a defined amount of water from a particular process.

If a sample analysed fails to meet a Generic Guideline Value, arrangements will be made to tanker the water to an authorised treatment facility. As part of the EMS

requirement for continued improvement in environmental performance, it is proposed to undertake a review of the monitoring data after 12 months.